

Decision **PROPOSED DECISION OF ALJ CHIV and ALJ ALLEN** (Mailed  
11/26/2019)

**BEFORE THE PUBLIC UTILITIES COMMISSION OF THE STATE OF CALIFORNIA**

Order Instituting Rulemaking to  
Oversee the Resource Adequacy  
Program, Consider Program  
Refinements, and Establish Annual  
Local and Flexible Procurement  
Obligations for the 2019 and 2020  
Compliance Years.

Rulemaking 17-09-020

**PROPOSED DECISION GRANTING MOTION REGARDING QUALIFYING  
CAPACITY VALUE OF HYBRID RESOURCES WITH MODIFICATIONS**

**Summary**

This decision grants the Joint Parties' motion to establish a schedule and process for determining the qualifying capacity value of hybrid resources, with modifications.

This proceeding remains open.

**1. Background**

On September 27, 2019, a joint motion was filed by Engie Storage, Enel X, Tesla, Inc., Sunrun Inc., Center for Energy Efficiency and Renewable Technologies, California Energy Storage Alliance, and Vote Solar (collectively, the Joint Parties). The motion requests a schedule and process for determining

the qualifying capacity (QC) value of hybrid resources located in front of the utility meter (IFOM) and behind the utility meter (BTM).

On October 14, 2019, responses to the motion were filed by Alliance for Retail Energy Markets (AREM), California Community Choice Association (CalCCA), California Environmental Justice Alliance, Sierra Club, and Union of Concerned Scientists (the Joint Environmental Parties), Large-scale Solar Association (LSA), Pacific Gas and Electric Company (PG&E), San Diego Gas & Electric Company (SDG&E), and Southern California Edison Company (SCE). Replies to responses were filed on October 24, 2019 by PG&E and the Joint Parties.

## 2. Summary of the Motion

In Decision (D.) 19-06-026, the Commission stated:

We decline to adopt a combined QC value for a dispatchable battery combined with a dispatchable generating resource, or a dispatchable battery combined with a renewable resource at this time. The Commission appreciates the potential benefits of “plus solar” resources and the financial considerations that would encourage development of combined battery and renewable resources. However, a combined QC value raises many questions that we are unable to answer at this time.<sup>1</sup>

The Commission “encourage[d] parties to discuss potential counting methodologies and modeling parameters in the ELCC working group.”<sup>2</sup>

In their motion, the Joint Parties highlight the following events that have occurred since the issuance of D.19-06-026:

1. The California Independent System Operator (CAISO) launched a stakeholder initiative to develop market participation rules for hybrid resources. The Joint Parties state that the initiative issued a paper stating that “41

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<sup>1</sup> D.19-06-026 at 37.

<sup>2</sup> *Id.*

- percent of the capacity in the CAISO interconnection queue is comprised of hybrid resources, at 35,341 megawatts (MW) of a total of 85,643 MW of generating projects in queue, suggesting that there is significant demand for such hybrid resources that warrants a fair and accurate capacity count.”<sup>3</sup>
2. A Proposed Decision in the Integrated Resource Planning (IRP) proceeding, Rulemaking (R.) 16-02-007, directed Load Serving Entities (LSEs) to procure 2,500 MW of incremental system Resource Adequacy (RA) capacity in SCE’s Transmission Access Charge (TAC) area to come online between August 2021 and 2023. The Proposed Decision also recommended extension of retirement deadlines for natural gas power plants that use once-through-cooling technology.<sup>4</sup>
  3. The IRP Proposed Decision also stated that “hybrid generation and storage projects will fare well in competitive solicitations for system reliability resources and should be strongly considered.”<sup>5</sup> The Joint Parties add that “[w]ithout a clear QC methodology, hybrid resources may be undervalued for their capacity contributions and thus undervalued in competitive solicitations.”<sup>6</sup>
  4. The Commission’s Energy Division issued a State of the Resource Adequacy Market Report on September 3, 2019, which highlighted supply deficiencies in RA showings. The Joint Parties state that “[t]hese deficiencies could be met with hybrid resources.”<sup>7</sup>
  5. Workshops required by D.19-06-026 were held on September 5 and 6, 2019. The Joint Parties state that “a

<sup>3</sup> Joint Motion to Establish a Schedule and Process for Determining the Capacity Value of Hybrid Resources (Joint Motion) at 3 (citing CAISO’s Hybrid Resources Issue Paper, July 18, 2019, at 3, available at:

<http://www.caiso.com/Documents/IssuePaper-HybridResources.pdf>).

<sup>4</sup> R.16-02-007, Proposed Decision of September 12, 2019.

<sup>5</sup> *Id.* at 38.

<sup>6</sup> Joint Motion at 3.

<sup>7</sup> *Id.* at 4.

clear path to establishing a hybrid resource QC did not come out of those workshops,” despite the stated urgency.<sup>8</sup>

Based on these events, the Joint Parties request that the Commission: (1) establish a timeline and process for determining the QC value of hybrid resources, and (2) commit to adopting an interim methodology for determining that value before the end of 2019.

### **3. Discussion**

#### **3.1. Adoption in the Resource Adequacy Proceeding**

The Joint Parties submitted their joint motion in both the RA proceeding and the IRP proceeding for resolution. AReM, PG&E, and SCE support the resolution of this motion in the RA proceeding, stating generally that the RA proceeding is historically where QC values have been set and that this issue is within the scope of Track 3 of this proceeding.<sup>9</sup> LSA states that issuing interim NQC values is within the scope of the IRP proceeding.<sup>10</sup>

The Commission agrees that QC values have historically been addressed in the RA proceeding and that this issue is within the scope of issues appropriate for this proceeding. Therefore, this motion will be addressed in the RA proceeding.

#### **3.2. Interim Methodology**

##### **3.2.1. Parties’ Positions**

The Joint Parties recommend the adoption of SCE’s “additive approach” as an interim methodology. In Track 3 of this proceeding, SCE proposed counting methodologies for various configurations of hybrid resources comprised of

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<sup>8</sup> *Id.*

<sup>9</sup> AReM Response at 2, PG&E Response at 4, SCE Response at 2.

<sup>10</sup> LSA Response at 2.

energy storage combined with a generating resource. SCE's proposal at issue in this decision is summarized as follows:

1. For resources pairing dispatchable storage with a dispatchable generator, the QC value should be the sum of the QC values of each element of the hybrid resource.
2. For resources pairing dispatchable storage with a non-dispatchable renewable generator, the QC value of the hybrid resource should be the sum of the effective load carrying capacity (ELCC) of the renewable resource and the maximum power output (Pmax) of the storage under a four-hour discharge.

Several parties support the motion, including AReM, CalCCA, the Joint Environmental Parties, and LSA.<sup>11</sup> SCE generally agrees with the motion but opposes developing a QC methodology for BTM resources as premature, citing jurisdictional issues with the Federal Energy Regulatory Commission (FERC) that cannot be unilaterally addressed in this proceeding and that the Commission does not allow export of power from BTM resources.<sup>12</sup> SCE states that if a permanent QC methodology for hybrid resources cannot be adopted by year end, SCE supports an interim methodology for counting IFOM hybrid resources.

SCE notes that it continues to refine its proposal based on questions raised in the workshop as to whether the proposed methodology overvalues a hybrid resource when the battery has charging restrictions, such as facilities receiving the Investment Tax Credit (ITC) that requires the battery to charge primarily from the paired renewable facility.

SDG&E generally supports the motion but offers an alternative interim approach for hybrid resources with operational restrictions, where the QC value

<sup>11</sup> AReM Response at 2, CalCCA Response at 2, Joint Environmental Parties Response at 3, LSA Response at 2.

<sup>12</sup> SCE Response at 2.

of the hybrid resource should be “the larger of (i) the effective load carrying capability (ELCC)-based QC of the intermittent resource or the QC of the dispatchable resources, whichever applies, and (ii) the QC of the co-located storage device.”<sup>13</sup> SDG&E states that “[t]his option has the advantage of certainty since the grid operator (the CAISO) has certainty that the hybrid resource can deliver *at least* the amount of the QC.”<sup>14</sup> For hybrid resources without operational limitations, SDG&E supports SCE’s proposed methodology.

PG&E opposes the motion, stating that the development of a QC methodology should be coordinated with the CAISO’s stakeholder initiative, that D.19-11-016 does not require a progress report on LSEs’ efforts until February 15, 2020, and that there is insufficient record for adopting an interim solution. PG&E also states that because the scoped tracks in this proceeding have nearly concluded, a schedule and process for developing a QC methodology should be set in the successor RA proceeding.<sup>15</sup>

In PG&E’s reply, PG&E supports SCE’s position that it is premature to determine a QC for exporting BTM resources.<sup>16</sup> In the Joint Parties’ reply, they clarify that their request is for “the QC value to apply to BTM resources participating in the market under any participation model, including the Distributed Energy Resource Provider (DERP) model.”<sup>17</sup> The Joint Parties disagree that the Commission must wait for FERC to assign a QC value to BTM hybrid resources.

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<sup>13</sup> SDG&E Response at 7.

<sup>14</sup> *Id.*

<sup>15</sup> PG&E Response at 6.

<sup>16</sup> PG&E Reply to Responses at 8.

<sup>17</sup> Joint Parties Reply to Responses at 3.

### 3.2.2. Discussion

In D.19-06-026, the Commission declined to adopt a QC methodology for combined resources, stating that there were numerous unanswered questions. While we believe that unresolved issues remain in developing a long-term QC methodology for hybrid resources, we agree with the Joint Parties that events following the issuance of D.19-06-026 warrant consideration of an interim methodology. In particular, in D.19-11-016 of the IRP proceeding, the Commission adopted a requirement for all LSEs to procure 3,300 MW of incremental system RA capacity, a more expansive requirement than was originally in the proposed decision cited by the Joint Parties. In consideration of D.19-11-016, the Commission concludes that it is necessary to adopt an interim QC methodology for hybrid resources at this time to ensure that hybrid resources are appropriately valued in competitive solicitations.

We next consider the definition of a “hybrid resource” for purposes of this interim QC methodology. SDG&E defines a “hybrid resource” as a “generating resource co-located with a storage project, having a single point of interconnection and represented by a single market resource ID.”<sup>18</sup> SDG&E notes that this configuration “is used to qualify storage for Investment Tax Credits (ITC) since eligibility requires that a substantial portion of the storage device’s charging energy comes from renewable resources.”<sup>19</sup> The Commission finds SDG&E’s definition to be reasonable ~~and adopts it here.~~ with modifications. For purposes of the interim QC methodology, a “hybrid resource” is a generating resource co-located with a storage project and with a single point of interconnection. The interim methodology shall only apply to a hybrid resource with ITC-related charging restrictions.

<sup>18</sup> SDG&E Response at 4.

<sup>19</sup> *Id.*

Next, we evaluate the appropriate interim QC methodology for a hybrid resource. Where neither resource component has ~~operational~~ITC-related charging restrictions, we see no reason for the two components to be combined into a hybrid resource for QC purposes. Even if both resources are on a single interconnect, each resource can obtain an individual CAISO resource ID and thus receive individual QC values. Therefore, it is unnecessary to adopt a QC methodology for hybrid resources without ~~operational~~charging restrictions.

For hybrid resources with ~~operational~~charging restrictions, the Commission agrees with SDG&E and SCE that the sum of the QC values of the individual components may overstate the value of the hybrid resource and that it is unclear how the capacity would be “derated.” It is likely that many of these hybrid resources will come online in the near future in an effort to take advantage of ~~ITCs~~the ITC and be subject to charging restrictions. SDG&E’s alternative proposal for hybrid resources with operational limitations presents a reasonable, conservative approach to determining the QC value. We recognize that this approach may undervalue hybrid resources, and that the appropriate long-term QC value may fall somewhere between this value and SCE’s proposed methodology. However, without any operational data or other method of determining how a battery should be “derated” at this time, we find that SDG&E’s approach is a prudent interim solution.

In comments to the proposed decision, SCE raised the issue of an oversized storage device that, given ITC-related charging restrictions, cannot reasonably be expected to be able to fully charge on a daily basis. We agree that a hybrid battery should not receive a QC value for capacity beyond what it can provide. Therefore, the monthly QC of the battery should be capped at the



amount of energy that can reasonably be expected to be available to charge the storage device on a daily basis.

Accordingly, where a hybrid resource has a charging ~~or other operational~~ restriction related to the ITC, the QC value shall be based on the greater of either: (i) the ELCC-based QC of the intermittent resource or the QC of the dispatchable resource, whichever applies, or (ii) ~~the~~ a modified QC of the co-located storage device that is capped at the maximum amount of expected energy available to charge the storage device.

Additionally, as the ELCC-based QC value of the intermittent renewable resource varies by month, SDG&E's methodology shall be applied monthly. For example, it may the case that a solar hybrid will be valued at the QC of the storage device in winter months when the ELCC is lower, and at the ELCC of the solar in summer months when it is higher.

Lastly, the Commission agrees with SCE and PG&E that it is premature to apply this QC methodology for hybrid resources to BTM resources. The only BTM ~~resources~~ resource that is currently ~~receive~~ dispatchable by CAISO and that receives RA credit ~~only as is~~ demand response ~~and may continue to do so for any,~~ including proxy demand response made up of a combination of BTM batteries and traditional demand response. Other BTM resources are currently accounted for through adjustments to the load forecast. Since demand response resources do not export to the grid, there are no existing rules or operational requirements associated with crediting BTM storage with more RA value than the current

[proxy demand response approach.](#)<sup>20</sup> Changing the treatment of BTM resources would involve significant changes to the RA program and [the CAISO tariff, and](#) raise issues that have not been developed in this proceeding. Accordingly, the QC methodology for hybrid resources adopted in this decision shall apply only to in front of the meter hybrid resources.

### **3.3. Process for Establishing QC Values**

The Joint Parties request a schedule and process for establishing a QC methodology for hybrid resources “so that developers of hybrid resources can plan and prepare to participate in resource solicitations, and so that LSEs can know if and when they will be able to procure hybrid resources and include those resources in their supply plans.”<sup>2021</sup>

The Commission finds that the interim methodology adopted in this decision is sufficient at this time for procurement of hybrid resources to meet IRP requirements. We intend to continue developing a permanent methodology for counting hybrid resources in the successor RA proceeding, R.19-11-009. [We anticipate adopting a permanent methodology that will encourage energy dispatch at times necessary for grid reliability. We do not expect that resources that provide system reliability benefits during the Availability Assessment Hours will be further “derated” under a permanent methodology.](#) Additionally, we intend to evaluate a variety of QC methodologies, as well as those not previously discussed in this proceeding, such as exceedance, that will encourage energy dispatch at times necessary for grid reliability.

<sup>20</sup> [The exception is BTM storage paired with solar, which may export to the grid, but can only export the energy charged from the solar. These resources are already compensated through the net energy metering tariff and demand effects are incorporated into the load forecast. Since these resources do not have telemetry, CAISO does not have visibility into the operation of these resources. This means they cannot be dispatched, performance cannot be evaluated, and payment provisions have not been defined.](#)

<sup>2021</sup> Joint Motion at 3.

#### 4. Comments on Proposed Decision

The proposed decision of Administrative Law Judges (ALJ) Chiv and Allen in this matter was mailed to parties in accordance with Section 311 of the Public Utilities Code. Comments were allowed under Rule 14.3 of the Commission's Rules of Practice and Procedure with the modification that opening comments must be filed by December 20, 2019 and reply comments must be filed by January 2, 2020. Comments were filed on \_\_\_\_\_

~~and reply comments were filed on \_\_\_\_\_ by~~

\_\_\_\_\_ December 20, 2019 by the Joint Parties, American Wind Energy Association of California and LSA (AWEA/LSA), CalCCA, California Energy Storage Alliance (CESA), Calpine Corporation (Calpine), CAISO, PG&E, Public Advocates Office (Cal Advocates), SDG&E, SCE, and Wellhead Electric Company, Inc. (Wellhead). Reply comments were filed on January 2, 2020 by CAISO, CESA and PG&E.

All comments have been considered. We do not summarize every comment but rather, focus on major arguments made in which the Commission did or did not make revisions in response to party input.

Several parties support the proposed decision, including Cal Advocates, SCE, SDG&E, PG&E, CAISO and Calpine. CalCCA asserts that the methodology does not provide adequate certainty and prefers deferring adoption of an interim QC value. Other parties, including CESA, the Joint Parties, and AWEA/LSA, comment that SDG&E's approach is overly conservative. We reiterate that an interim methodology is needed in light of ongoing procurement and that a conservative approach is appropriate at this time.

Several parties, including CAISO, CESA, PG&E, CalCCA, SCE, Cal Advocates, and Calpine, request a definition for the term "operational

restrictions.” CAISO suggests removing reference to “operational restrictions” and stating that the methodology only applies to hybrid resources with ITC-related charging restrictions. We clarify that the focus of this decision is on hybrid resources subject to battery charging restrictions related to qualification for the ITC. The decision has been modified to reflect this clarification.

SDG&E requests clarification that the greater of the ELCC value of the renewable resource and the QC value of the battery shall be determined on a monthly basis. We acknowledge that ELCC values vary by month and agree that the QC of the component with the higher QC value in each month should apply. We have modified the decision with this clarification.

CalCCA recommends stating that the methodology does not apply to co-located resources with two or more CAISO resource IDs and a common point of interconnection even if the resource has charging or operational restrictions. We strongly disagree. A storage device with charging restrictions should receive a QC value that is less than Pmax whether or not it has an individual resource ID. To avoid potential confusion, we have removed references to a single CAISO resource ID.

PG&E recommends stating that the methodology does not apply to hybrid resources without operational restrictions, even if both components of the hybrid resource are on a single interconnect and/or share a single CAISO resource ID. We agree that this clarification is appropriate.

SCE raises the circumstance in which the storage facility is sized above the amount of energy that is likely to be stored in order to support the QC. This would occur if the storage device was larger than the amount of energy the renewable could reasonably be expected to generate in a day. SCE offers an approach for estimating how the QC of the storage device should be capped. For

solar paired with storage, based on an assumed 30 percent capacity factor for the solar and a four hour duration storage device, storage would be capped at 1.8 times the Pmax of the storage device. Similarly, based on a 33 percent capacity factor for wind, a storage device paired with wind would be capped at Pmax times 1.98.

While we agree that the QC storage device should be capped at the amount of capacity that it can reasonably be expected to provide, we decline to adopt SCE's formulas. An annual capacity factor may not be appropriate for determining a monthly QC value if generation has significant seasonal generation. Each month, the expected average daily renewable production from the generator should be adequate to charge the four hour battery. Until the interim methodology is replaced, Energy Division Staff shall derate the QC of the storage device in cases where average daily renewable production is expected to be insufficient to charge the battery on a daily basis. This assessment will occur when the resource is first added to the Net Qualifying Capacity (NQC) list, and annually, when the following year's NQC list is produced.

SDG&E seeks clarification that the existing RA requirements that a resource must be able to discharge for four hours and three consecutive days would apply to additional energy storage. We agree that this requirement applies to all components of the hybrid resource.

The Joint Parties (including CESA) and CalCCA reiterate support for an interim methodology for BTM resources. SCE, PG&E and Cal Advocates support deferring this issue. We maintain that changing the treatment of BTM resources involves significant changes to the RA framework and add clarifying language to the decision on this point.

## 5. Assignment of Proceeding

Liane M. Randolph is the assigned Commissioner and Debbie Chiv and Peter V. Allen are the assigned Administrative Law Judges in this proceeding.

### Findings of Fact

1. Establishing QC values is within the scope of issues appropriate for the RA proceeding.
2. Events following the issuance of D.19-06-026 warrant adoption of an interim QC methodology for hybrid resources.
3. SDG&E's definition of a hybrid resource is reasonable with modifications.
4. SDG&E's alternative proposal for hybrid resources with ~~operational limitations~~ charging restrictions related to the ITC is an appropriate, conservative approach to determining QC values.
5. Applying SDG&E's proposal on a monthly basis is appropriate.
6. It is reasonable to cap the monthly QC of the charging device at the capacity value that can reasonably be expected to be charged on a daily basis.
7. It is unnecessary to adopt an interim QC methodology for hybrid resources without charging restrictions because each resource can obtain an individual CAISO resource ID and thus receive individual QC values, even if both resources are on a single interconnect.
8. ~~5.~~ It is premature to apply an interim QC methodology for hybrid resources to BTM resources.

### Conclusions of Law

1. An interim QC methodology for hybrid resources should be adopted.
2. SDG&E's definition of a hybrid resource should be adopted with modifications for purposes of an interim QC methodology.

3. For hybrid resources with ~~operational limitations~~ charging restrictions related to the ITC, SDG&E's alternative proposal should be adopted as an interim methodology.

4. The interim QC methodology for hybrid resources should apply only to in front of the meter hybrid resources.

## O R D E R

**IT IS ORDERED** that:

1. The following qualifying capacity methodology is adopted on an interim basis for in front of the meter hybrid resources:

Where a hybrid resource has charging ~~or other operational~~ restrictions related to the Investment Tax Credit, the qualifying capacity value shall be based on the greater of either: (i) the effective load carrying capacity-based qualifying capacity (QC) of the intermittent resource or the QC of the dispatchable resource, whichever applies, or (ii) ~~the a modified~~ QC of the co-located storage device capped at the maximum amount of expected energy available to charge the storage device.

2. For purposes of the interim qualifying capacity (QC) methodology, a "hybrid resource" is defined as a generating resource co-located with a storage project, ~~having and with~~ a single point of interconnection ~~and represented by a single-market resource ID~~. The interim QC methodology shall only apply to hybrid resources with Investment Tax Credit-related charging restrictions.

3. Rulemaking 17-09-020 remains open.

This order is effective today.

Dated \_\_\_\_\_, at San Francisco, California.

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